



# CONCAP

## CAPACITORS

LEADERS SINCE 1983



Registered Office:

## Concap Electricals Private Limited

# Plot No.8, Road No 82, 2nd Floor, Jubilee Hills, Hyderabad -500033, Telangana.

### CUSTOMER CARE

Ph no : +91 9949287490 , +91 9515087490

e-mail : [info@concap.in](mailto:info@concap.in), [customer-care@concap.in](mailto:customer-care@concap.in)



under process



[www.concap.in](http://www.concap.in)



**CONCAP**  
**CAPACITORS**  
LEADERS SINCE 1983



## VISION

“**CEPL** envisions to be a global leader in capacitor technology, driving innovation, sustainability and excellence in every product we deliver, while fostering long - term relationships with our customers and stakeholders, whilst catering to employee welfare and social well being.”

## MISSION

“At **CEPL**, our mission is to design, produce, and distribute high - quality capacitors that enhance the performance, efficiency and reliability of electronic and electrical systems. We are committed to continuous innovation, rigorous quality control, and sustainable practices, ensuring our products meet the highest industry standards. Through a customer - centric approach and dedicated technical support, we aim to exceed expectations and contribute positively to the communities we serve.”



**CONCAP**  
**CAPACITORS**  
LEADERS SINCE 1983



## **ABOUT US:**

Welcome to **CONCAP ELECTRICALS PRIVATE LIMITED (CMPL)**, a distinguished name in the capacitor manufacturing industry with over 40 years of excellence. Incorporated in the year 1983 by **Late Shri ASHOK KUMAR TIBREWALA** and led by our dynamic and innovative chairman **Mr ASHWIN TIBREWALA**. As an ISO 9001:2015 certified company with ISI and CE approvals, we pride ourselves on delivering world - class capacitors that meet the highest standards of quality and reliability.

## **OUR MANUFACTURING EXCELLENCE:**

**CEPL** operates in a two state of art manufacturing units located in **HYDERABAD** and **GOA**. These facilities are equipped with advanced technology and machinery, enabling us to maintain one of the largest installed bases for capacitors production in the industry. Our manufacturing prowess allows us to produce over 25 million capacitors annually, ensuring we meet the growing demands of our national and global clientele.

## **OUR PRODUCT RANGE:**

We specialize in a diverse range of capacitors designed to cater to various applications including Air Conditioner Capacitors, Fan Capacitors, Motor Run & Motor Start Capacitors, Submersible Pump Capacitors, Washing Machine Capacitors, Oil Capacitors, Power Factor Correction Capacitors And Harmonic Filters.

Each product is engineered with precision and subjected to rigorous quality control processes to ensure optimal performance and durability.

## **OUR GLOBAL REACH:**

**CEPL** has garnered significant recognition not only across India but also in the Middle East and ASEAN countries. Our commitment to quality and innovation has earned us a reputation as a trusted partner in the electronic industry, enabling to us successfully reach the milestone of \$21 million in revenue.

At **CEPL**, we aspire to continue our growth trajectory and transform into a billion - dollar enterprise.



### Principle of Reactive Energy Management

Under normal operating conditions, certain electrical loads (e.g. induction motors, welding equipment, arc furnaces and fluorescent lighting) draw not only active power from the supply, but also inductive reactive power (KVAR). This reactive power is necessary for the equipment to operate correctly but could be interpreted as an undesirable burden on the supply. The power factor of a load is defined as the ratio of active power to apparent power, i.e. KW : KVA, and is referred to as  $\cos\phi$ . The closer  $\cos\phi$  is to unity, the less reactive power is drawn from the supply.

Awareness of the necessity of power is increasing and Power Factor Correction (PFC) is being implemented on a growing scale. Enhancing power quality, improvement of Power Factor, saves costs and endures fast return on investment, In Power distribution, in low and medium-Voltage networks, PFC focus on the Power Flow ( $\cos\phi$ ) and the optimization of Voltage stability by generating Reactive Power to improve Voltage quality and reliability at distribution level.

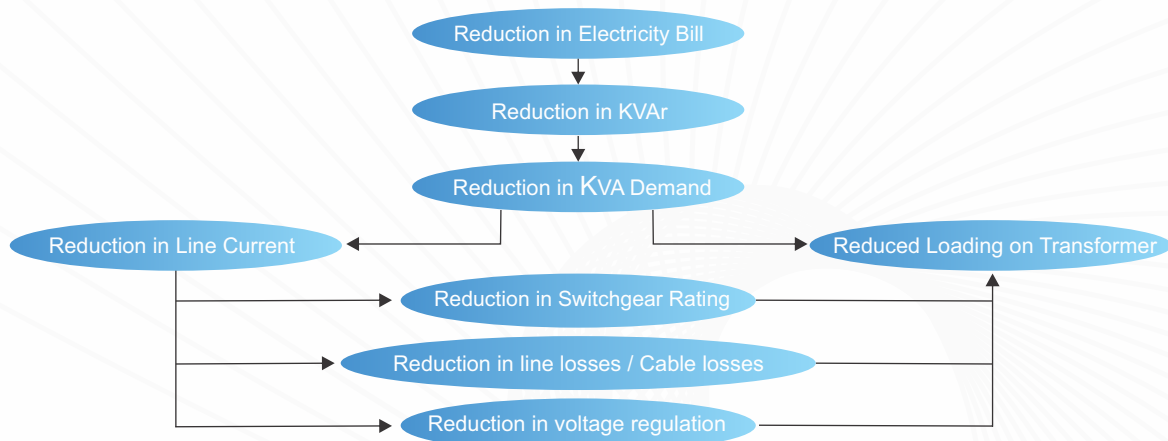
#### Low Power Factor results in:

- Higher energy consumption & costs
- Less power distributed via the supply line
- Power loss in the network
- High transformer losses
- Increased voltage drop in power distribution networks

### Benefits of Power factor improvement

By providing proper Reactive management system, the adverse effects of flow of reactive energy can be minimized.

Following table provides some of the benefits of reactive energy management.



#### Types of compensation

There are two types of compensation:

- Fixed compensation
- Variable compensation

#### Fixed compensation:

This arrangement uses one or more Capacitors to provide a constant level of compensation.

Control may be:

- Manual - By Circuit-breaker or Load-break switch
- Semi-automatic - By Contactor
- Direct connection to an appliance and switched with it.



These capacitors are applied at the terminals of inductive loads (mainly Motors), at bus bars connecting numerous small Motors and inductive appliances for which individual compensation would be too costly or in cases where the load factor is reasonably constant.

### Variable compensation

- IPFC panels
- Contactor / Thyristor based
- ePFC
- Electronic VAr compensator with IGBT

The primary reason for Variable compensation is the variation of loads in the network. In many applications the process are not constant throughout the day, hence the reactive energy required varies as per the load profile. To eliminate the risk of leading power factor and to optimize the kVA demand, the variable compensation techniques are used.

### Modes of compensation

The selection of the Power Factor Correction equipment can follow 3 levels of compensation:

- Central compensation
- Group compensation
- Individual compensation

### Application Recommendations

CEPL offers Power Capacitors for a variety of applications, divided into four separate categories:

- **Agri Duty Capacitors**
- **Standard Duty Capacitors**
- **Double Di-electric capacitors**
- **Heavy Duty Capacitors**
- **Super Heavy Duty Capacitors**

### Design & quality

CEPL manufactured CONCAP Brand Power Capacitors are manufactured since decades at the company's Hyderabad production site in Telangana, and Goa production site in Goa India. This has resulted in a consistently high product quality being maintained for assured operational reliability and long service life.

CONCAP Power Capacitors are manufactured in a unique dry and jelly oil filled design. Each capacitor coils wound in a low-loss, Multi Heavy Edge Metallized Polypropylene Film enclosed in a cylindrical Aluminium casing provided with Overpressure disconnecter. Discharge resistors, permanently connected in the factory, guarantee that the residual voltage falls to <50 V within one minute after the capacitor has been disconnected. The electrical connections are by means of Cables or female Screw connectors (IP00).

The use of rigorously inspected materials and their careful processing guarantee excellent quality and a long product service life.

Quality control inspections after each individual manufacturing step ensure that the final product is of a high quality. These demanding quality standards, together with specially developed manufacturing technology, enable CONCAP Power Capacitors to achieve a longer-than-average service life. At the end of the manufacturing process, each Capacitor is inspected individually. The in-house requirements for this special inspection are considerably more stringent than those of the routine tests specified by the relevant standards.



### Standards

All CEPL manufactured Power Capacitors comply with the IS 13340 Part I and International Standards IEC 60831, I

The reliability of Power Capacitors is crucially important for the problem-free operation of power factor correction systems and passive filters. Power Capacitors now a days usually use Polypropylene as the dielectric material, its surfaces being Metallized. This design has the important property that if local overloading occurs and punctures the substrate film, the fault heals automatically, a phenomenon known as Self-healing.

The other design feature for increases product safety is the 3-phase Overpressure disconnecter, a mechanical fuse included in every CONCAP Capacitor. If an excessive internal pressure develops due to overloading, or at the end of the Capacitor's service life, the mechanical fuse isolates the Capacitor safely from the power supply by disconnecting all poles. Should puncturing of the dielectric occur on a major scale, this results in the substrate film melting and generating gases inside the casing, thus building up pressure in the Capacitor. This causes the diaphragm lid to bulge outwards, thereby tensioning the internal leads to the coils until they act as mechanical fuses, breaking cleanly at defined locations. The bulging of the lid also increases the internal volume, therefore reducing the pressure inside the Capacitor.

Special technical features In our ongoing development work on CONCAP Power Capacitors, we always focus on those attributes that are called for in present-day applications. The three following factors are especially important:

- Overvoltage tolerance • Current-carrying capacity • Thermal endurance

#### Overvoltage tolerance

All CONCAP Power Capacitors are designed to withstand the following Overvoltages:

8 hours daily:  $1.10 \times$  Capacitor Nominal Voltage

30 minutes daily:  $1.15 \times$  Capacitor Nominal Voltage

5 minutes:  $1.20 \times$  Capacitor Nominal Voltage

1 minute:  $1.30 \times$  Capacitor Nominal Voltage

#### Current-carrying capacity

All over the modern world, harmonics are polluting the electricity supply networks. The increasing use of devices such as frequency converters has a growing impact on Capacitors. If these are operated in a power supply network contaminated by harmonics, dangerous resonances can result, which can again significantly increase the currents that the Capacitors must withstand.

The applicable standards call for a continuous current-carrying capacity of at least 1.3 times of the nominal current to be designed for in Power Capacitors. In reality, however, even this value can be exceeded under conditions with extreme levels of harmonics.





### Thermal endurance

Excessive temperatures also have a negative impact on the service life of a Capacitor. Storage or operation of Capacitors above their permitted temperature limits results in a drastic shortening of their service life.

Temperature Class	Maximum ambient temperature		
	Absolute maximum temp.	Max average temp. over 1 day	Max average over 1 year
B	45°C	35°C	25°C
C	50°C	40°C	30°C
D	55°C	45°C	35°C

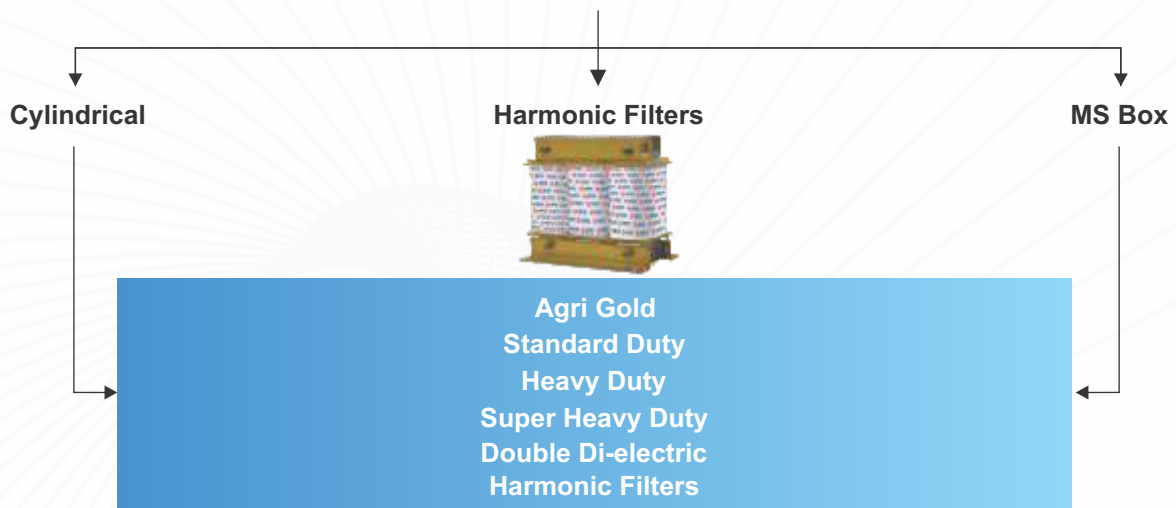
The temperatures stated above refer to the direct environment of the Capacitors. This means the internal temperature in the enclosure or control cabinet that houses them. Experience shows that the limits given in the table for the temperature classes can easily be exceeded in practice. Higher temperatures are to be expected in particular in the case of power factor correction systems fitted with filter reactors.

CONCAP Power Capacitors in the Standard Duty, Heavy Duty, Super Heavy Duty and Agri Gold categories are therefore designed for continuous ambient temperatures of at least 70 °C.

This continuously rated thermal endurance is helped by the compact construction of the Capacitors, which is conducive to optimum heat dissipation.

### Product Range

## CONCAP CAPACITORS





## Cylindrical - Agriculture Application

### Specifications:

Conforming to BIS Standards 13340 Part I  
IEC 60831 - I

### Applications:

- Power Factor improvement Correction in Agriculture application
- Fixed PFC applications, e.g. Motor compensation

### Electrical:

- Long life expectancy up to 100000 hours
- Max inrush current handling capability 200 x IR

### Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

### Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Shock hazard protected optimized safety terminals

### Features:

- Cylindrical Aluminium Casing with stud
- Impregnation: Oil Jelly / PU Resin
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer life
- Wall mounting arrangement
- Compact Size and light weight
- Voltage range 415 / 440V, 50 / 60Hz 3-phase
- Output range 1 - 20 KVAR

AgriGold

### Standard Duty



Voltage range: 400 - 440V, 50Hz  
Output range: 1.00 -10.00 KVAR  
Impregnation: PU Resin

### Agri Gold Heavy Duty



Voltage range: 380 - 440V, 50Hz  
Output range: 1.00 -25.00 KVAR

- Burst Proof
- Oil Jelly Filled







## MS Box - Agriculture Application

### Specifications:

Conforming to BIS Standards 13340 Part I  
IEC 60831 - I

### Applications:

- Power Factor improvement Correction in Agriculture application
- Fixed PFC applications, e.g. Motor compensation

### Electrical:

- Long life expectancy up to 100000 hours
- Max inrush current handling capability 200 x IR

### Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

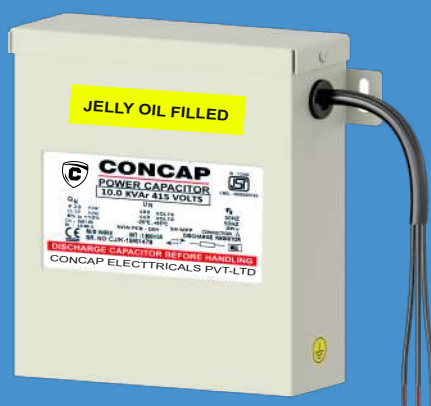
### Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Easy Connection - Wire terminal

### Features:

- MS Box / Plastic Box
- Impregnation: PU Resin
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer life
- Wall mounting arrangement
- Compact Size and light weight
- Voltage range 380 - 440V, 50Hz 3-phase
- Output range 1 - 20 KVAR

### MS Box with Wire



Voltage range: 380 - 440V, 50Hz  
Output range: 1.00 - 20.00 KVAR

### Plastic Box with Wire



Voltage range: 380 - 440V, 50Hz  
Output range: 1.00 - 7.00 KVAR





## Cylindrical - Industrial Application

### Specifications:

Conforming to BIS Standards 13340 Part I  
IEC 60831 - I

### Applications:

- Power Factor improvement Correction in small scale industries, Machine shops, tool rooms small frame Motor compensation and Agriculture application
- Automatic Capacitor Banks
- Fixed PFC applications, e.g. individual Motor compensation
- Detuned PFC systems
- Dynamic PFC systems
- Filter Application

### Electrical:

- Long life expectancy
- Max inrush current handling capability upto 300 x IR

### Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

### Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Shock hazard protected optimized Capacitor safety terminals

### Features:

- Cylindrical Aluminium Casing with stud
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer life
- Easy mounting arrangement
- Compact Size and light weight
- Voltage range 380V - 690V, 50 / 60Hz 3-phase

- Overpressure Disconnecter
- Jelly Oil Filled

## LONGER THAN AVERAGE SERVICE LIFE

### Standard Duty



Voltage range: 380 - 440V, 50 / 60Hz  
Output range: 1.00 - 25.00 KVAR  
Life Expectancy: 100000 hours  
Max inrush current capability 200 x IR

### Heavy Duty



Voltage range: 380 - 480V, 50 / 60Hz  
Output range: 5.00 - 25.00 KVAR  
Life Expectancy: 150000 hours  
Max inrush current capability 250 x IR

### Super Heavy Duty



Voltage range: 380 - 690V, 50 / 60Hz  
Output range: 5.00 - 25.00 KVAR  
Life Expectancy: 200000 hours  
Max inrush current capability 300 x IR



## MS Box - Industrial Application

### Specifications:

Conforming to BIS Standards 13340 Part I  
IEC 60831 - I

### Applications:

- Power Factor improvement Correction in small scale industries, Machine shops, tool rooms, small frame Motor compensation and Agriculture application, Wind power, Roller mills
- Automatic capacitor banks
- Fixed PFC applications, e.g. Motor compensation
- Detuned PFC systems
- Dynamic PFC systems
- Filter Application

### Electrical:

- Long life expectancy
- Max inrush current handling capability upto 300 x IR

### Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

### Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Shock hazard protected optimized Capacitor safety terminals

### Features:

- MS Box
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer life
- Easy mounting arrangement
- Voltage range 380V - 690V, 50 / 60Hz 3-phase

- Over pressure Disconnecter
- Jelly Oil Filled

## LONGER THAN AVERAGE SERVICE LIFE

### Standard Duty



Voltage range: 380 - 440V, 50 / 60Hz  
Output range: 1.00 - 25.00 KVAR  
Life Expectancy: 100000 hours  
Max inrush current capability 200 x IR


### Heavy Duty



Voltage range: 380 - 480V, 50 / 60Hz  
Output range: 5.00 - 25.00 KVAR  
Life Expectancy: 150000 hours  
Max inrush current capability 250 x IR

### Super Heavy Duty

Double Dielectric



Voltage range: 400 - 690V, 50 / 60Hz  
Output range: 5.00 - 25.00 KVAR  
Life Expectancy: 200000 hours  
Max inrush current capability 300 x IR



## Cylindrical - Monophase Capacitors

### Specifications:

Conforming to BIS Standards 13340 Part I  
IEC 60831 - I

### Applications:

- Power Factor improvement Correction in Agriculture application
- Fixed PFC applications, e.g. Motor compensation

### Electrical:

- Long life expectancy
- Max inrush current handling capability upto 200 x IR

### Mechanical and maintenance:

- Easy installation and connection
- Low weight and compact volume
- Maintenance-free

### Safety:

- Self-healing property eliminates possibilities of short circuit as internal faults heal automatically
- Overpressure disconnecter
- Shock hazard protected optimized Capacitor safety terminals

### Features:

- Cylindrical Aluminium Casing with Stud
- Impregnation: Oil Jelly
- Manufactured using Multi Heavy Edge Metallized PP Film ensuring better bonding between the electrode and end spray
- Very low losses reduces temperature rise of Capacitors resulting in longer life
- Easy mounting arrangement
- Compact Size and light weight
- Voltage range 230-275V, 50 / 60Hz Monophase

## Monophase Capacitors



- Explosion Proof
- Impregnation: Oil Jelly
- Wire Terminal for easy installation

Voltage range: 230 - 275V, 50 / 60Hz  
Output range: 1.00 - 10.00 KVAR  
Life Expectancy: 100000 hours  
Max inrush current capability 200 x IR



### Technical data sheet

Parameter	Unit	Standard Duty / Agriculture Application
Reference Standard		13340 Part I IEC 60831 - I
Power (Rated Capacitance)	Qn	1 - 25 KVAR
Tolerance		- 5% To +10 %
Connection		Delta
Rated voltage	$V_R$	380V - 440V, 3-Phase
Rated Frequency	$f_R$	50 / 60 Hz
<b>Max. Ratings</b>		
Max. Permissible Voltage	$V_{max}$	$V_R + 10\%$ (up to 8 hours daily) $V_R + 15\%$ (up to 30 Minutes daily) $V_R + 20\%$ (up to 5 Minutes daily) $V_R + 30\%$ (up to 1 Minute daily) "
Max. Permissible Current	$I_{max}$	Up to $1.3 \times I_R$ (up to $1.5 \times I_R$ incl. combined effects of harmonics, over voltages and capacitance) up to $200 \times I_R$
Max. Transient Inrush Current Handling Capacity	$I_s$	
<b>Test Data</b>		
AC Test Voltage Terminal to Terminal	$V_{TT}$	$2.15 \times UN$ , 2 Sec.
Insulation Voltage Between Terminal & Container	$V_{TC}$	3600 V AC, 2 Sec
<b>Losses</b>		
- Dielectric		$<0.2$ W/KVAR
- Total (without discharge resistor)		$<0.5$ W/KVAR
Ambient Temperature	$^{\circ}C$	$-25^{\circ}C$ ; max. temp. $55^{\circ}C$ ; max mean 24h = $45^{\circ}C$ ; max. mean 1 year = $35^{\circ}C$ ; lowest temp. = $-25^{\circ}C$
Max. humidity	$H_m$	95%
Max. Permissible Altitude		4000 M above Sea level
Mean Life Expectancy	$t_{LD} (co)$	100000 Hrs
<b>Design Data</b>		
Case Material / Shape		Aluminium Cylindrical, MS Box
Dimensions		According to Rated Capacitance
Dielectric		Polypropylene Film
Impregnation		Oil Jelly
Fixing		Threaded Bolt M8 / M12
Max. Torque for Fixing	$N_m$	$4 N_m / 10 N_m$
Mounting Position		Upright. Horizontal mounting with additional Head support possible, Base Mounting
Terminals		Screw / Bolt Terminal
Degree of Protection Safety		IP20 / IP41 Fabricated Sheet Metal
Max. Torque for Connection Terminals (5 KVAR and above)	$N_m$	$2.5 N_m$
<b>Safety</b>		
Mechanical Safety		Tear of fuses, Overpressure disconnecter
Discharge Device		Resister
Discharge Device Time	Seconds	$\leq 60$ Sec (50 V)
Cooling		Natural or Forced
Max. Switching Operations		Max. 5000 Nos. Per Year



### Technical data sheet

Parameter	Unit	Heavy Duty
Reference Standard		13340 Part I, IEC 60831 - I
Power (Rated Capacitance)	Qn	5– 25 KVAR
Tolerance		-5% To +10%
Connection		Delta
Rated voltage	$V_R$	380V - 480V, 3-Phase
Rated Frequency	$f_R$	50 / 60 Hz
<b>Max. Ratings</b>		
Max. Permissible Voltage	$V_{max}$	$V_R + 10\%$ (up to 8 hours daily) $V_R + 15\%$ (up to 30 Minutes daily) $V_R + 20\%$ (up to 5 Minutes daily) $V_R + 30\%$ (up to 1 Minute daily) "
Max. Permissible Current	$I_{max}$	Up to $1.3 \times I_R$ (up to $1.5 \times I_R$ incl. combined effects of harmonics, over voltages and capacitance) up to $250 \times I_R$
Max. Transient Inrush Current Handling Capacity	$I_s$	
<b>Test Data</b>		
AC Test Voltage Terminal to Terminal	$V_{TT}$	$2.15 \times UN$ , 2 Sec.
Insulation Voltage Between Terminal & Container	$V_{TC}$	$3600 \text{ V AC}$ , 2 Sec
<b>Losses</b>		
– Dielectric		$<0.2 \text{ W/KVAR}$
– Total (without discharge resister)		$<0.5 \text{ W/KVAR}$
Ambient Temperature	$^{\circ}\text{C}$	$-25^{\circ}\text{C}$ ; max. temp. $55^{\circ}\text{C}$ ; max mean 24h = $45^{\circ}\text{C}$ ; max. mean 1 year = $35^{\circ}\text{C}$ ; lowest temp. = $-25^{\circ}\text{C}$
Max. humidity	$H_m$	95%
Max. Permissible Altitude		4000 M above Sea level
Mean Life Expectancy	$t_{LD}(\text{co})$	150000 Hrs
<b>Design Data</b>		
Case Material / Shape		Aluminium Cylindrical, MS Box
Dimensions		According to Rated Capacitance
Dielectric		Polypropylene Film
Impregnation		Oil Jelly
Fixing		Threaded Bolt M8 / M12
Max. Tourque for Fixing	$N_m$	$4 \text{ Nm} / 10 \text{ Nm}$
Mounting Position		Upright. Horizontal mounting with additional Head support possible, Base Mounting
Terminals		Screw / Bolt Terminal
Degree of Protection Safety		Ip20 / IP41 Fabricated Sheet Metal
Max. Tourque for Connection Terminals	$N_m$	$2.5 \text{ Nm}$
<b>Safety</b>		
Mechanical Safety		Tear of fuses, Overpressure disconnecter
Discharge Device		Resister
Discharge Device Time	Seconds	$\leq 60 \text{ Sec}$ (50 V)
Cooling		Natural or Forced
Max. Switching Operations		Max. 5000 Nos. Per Year



### Technical data sheet

Parameter	Unit	Super Heavy Duty
Reference Standard		13340 Part I, IEC 60831 - I
Power (Rated Capacitance)	Qn	5– 25 KVAR
Tolerance		-5% To +10%
Connection		Delta
Rated voltage	$V_R$	380V - 690V, 3-Phase
Rated Frequency	$f_R$	50 / 60 Hz
<b>Max. Ratings</b>		
Max. Permissible Voltage	$V_{max}$	$V_R + 10\%$ (up to 8 hours daily) $V_R + 15\%$ (up to 30 Minutes daily) $V_R + 20\%$ (up to 5 Minutes daily) $V_R + 30\%$ (up to 1 Minute daily) "
Max. Permissible Current	$I_{max}$	Up to $1.3 \times I_k$ (up to $1.5 \times I_k$ incl. combined effects of harmonics, over voltages and capacitance) up to $300 \times I_k$
Max. Transient Inrush Current Handling Capacity	$I_s$	
<b>Test Data</b>		
AC Test Voltage Terminal to Terminal	$V_{TT}$	$2.15 \times UN$ , 2 Sec.
Insulation Voltage Between Terminal & Container	$V_{TC}$	3600 V AC, 2 Sec
<b>Losses</b>		
– Dielectric		$< 0.2$ W/KVAR
– Total (without discharge resister)		$< 0.5$ W/KVAR
Ambient Temperature	$^{\circ}C$	$-25^{\circ}C$ ; max. temp. $55^{\circ}C$ ; max mean 24h = $45^{\circ}C$ ; max. mean 1 year = $35^{\circ}C$ ; lowest temp. = $-25^{\circ}C$
Max. humidity	$H_m$	95%
Max. Permissible Altitude		4000 M above Sea level
Mean Life Expectancy	$t_{LD}$ (co)	200000 Hrs
<b>Design Data</b>		
Case Material / Shape		Aluminium / Cylindrical
Dimensions		According to Rated Capacitance
Dielectric		Polypropylene Film
Impregnation		Oil Jelly
Fixing		Threaded Bolt M8 / M12
Max. Tourque for Fixing	$N_m$	$4 N_m / 10 N_m$
Mounting Position		Upright. Horizontal mounting with additional Head support possible, Base Mounting
Terminals		Screw / Bolt Terminal
Degree of Protection Safety		IP20 / IP41 Fabricated Sheet Metal
Max. Tourque for Connection Terminals (5 KVAR and above)	$N_m$	$2.5 N_m$
<b>Safety</b>		
Mechanical Safety		Tear of fuses, overpressure disconnecter
Discharge Device		Resister
Discharge Device Time	Seconds	$\leq 60$ Sec (50 V)
Cooling		Natural or Forced
Max. Switching Operations		Max. 5000 Nos. Per Year



### Anti Harmonic Detuned Filter

The increasing use of modern power electronic apparatus (drives, uninterruptible power supplies, etc) produces nonlinear current and thus, influences and loads the network with harmonics (line pollution). The power factor correction or capacitance of the Power Capacitor forms a resonant circuit in conjunction with the feeding transformer. Experience shows that the self resonant frequency of this circuit is typically between 250 and 500 Hz, i.e. in the region of the 5th and 7th harmonics.

Such a resonance can lead to the following undesirable effects:

- Overloading of Capacitors
- Overloading of transformers and transmission equipment
- Interference with metering and control systems, computers and electrical gear
- Resonance elevation, i.e. amplification of harmonics Voltage distortion.

These resonance phenomena can be avoided by connecting Capacitors in series with filter reactors in the PFC system. These so called "detuned" PFC systems are scaled. in a way that the self-resonant frequency is below the lowest line harmonic. The detuned PFC system is purely inductive seen by harmonics above this frequency. For the base line frequency (50 or 60 Hz usually), the detuned system on the other hand acts purely capacitive, thus correcting the reactive power.

#### Applications

- Avoidance of resonance conditions
- Tuned and detuned harmonic filters
- Reduction of harmonic distortion (network clearing)
- Reduction of power losses

#### Features

- High harmonic loading capability
- Very low losses
- High linearity to avoid choke tilt
- Low noise
- Convenient mounting
- Long expected life time

#### Mechanical and maintenance

- Low mounting costs
- Easy installation and connection
- Compact volume
- Maintenance-free

### Anti Harmonic Detuned Filter Data Sheet

Reference Standard	IEC 61558 / IS 5553
Tolerance of Inductance	± 3%
Harmonics*	V3 = 0.5% VR (duty cycle = 100%) V5 = 6.0% VR (duty cycle = 100%) V7 = 5.0% VR (duty cycle = 100%) V11 = 3.5% VR (duty cycle = 100%) V13 = 3.0% VR (duty cycle = 100%)
Effective current	$I_{rms} = \sqrt{I_1^2 + I_3^2 + \dots + I_n^2}$
Fundamental current	$I_1 = 1.06 \cdot I_R$ (50 Hz or 60 Hz current of capacitor)
Insulation (winding-core)	3 kV
Temperature protection	Microswitch (NC)
Three-phase filter reactors to EN 60289 / IEC 61558	
Frequency	50 Hz or 60 Hz
Voltage	400, 440 V AC
Output	5 ... 100 KVAR
Detuning Factors	5.67%, 7%, 14%
Cooling	Natural
Ambient temperature	40 °C
Humidity	95%
Insulation class	H
<b>Class of protection</b>	
Enclosure	IP00
Max. Permissible Attitude	Max. 4000M above sea level
Terminals	Lugs / Busbar
Response Temperature	140° C
Voltage	250 V AC (<4A) ... 500 V AC (<2A)







### Direct Individual Compensation for induction Motor

Motor HP	3000 RPM	1500 RPM	1000 RPM	750 RPM	600 RPM	500 RPM
2.5	1	1	1.5	2	2.5	2.5
5	2	2	2	3	3	3
7.5	2	2	3	3	3	3
10	3	3	4	5	5	5
12.5	3.5	4.5	5	6.5	7.5	8
15	3	4	5	7	7	7
20	5	6	7	8	8	10
25	6	7	8	9	9	12
30	7	8	9	10	10	15
40	9	10	12	15	16	20
50	10	12	15	18	20	22
60	12	14	15	20	25	25
75	15	16	20	22	25	30
100	20	22	25	26	32	35
125	25	26	30	32	35	40
150	30	32	35	40	45	50
200	40	45	45	50	55	60
250	45	50	55	60	65	70

\*Above 250HP - KVAR approximate 35% of the motor power.

#### Important Notes

1. The following applies to all products named in this publication:
2. Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. As a rule, CONCAP CAPACITORS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an CONCAP CAPACITORS product with the properties described in the product specification is suitable for use in a particular customer application.
3. We also point out that in individual cases, a malfunction of passive electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of a passive electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of a passive electronic component.
4. The warnings, cautions and product-specific notes must be observed.
5. In order to satisfy certain technical requirements, some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as "hazardous"). Useful information on this will be found in our catalogue. Should you have any more detailed questions, please contact our sales offices.
6. We constantly strive to improve our products. Consequently, the products described in this publication may change from time to time. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order. We also reserve the right to discontinue production and delivery of products. Consequently, we cannot guarantee that all products named in this publication will always be available.



# CONCAP

## CAPACITORS

LEADERS SINCE 1983



Calculation Table for Reactive Power Demand (Qc)

Current (ACTUAL) tanφ	cosφ	Achievable (TARGET) cosφ							TARGET cosφ=0.96		
		0.80	0.82	0.85	0.88	0.90	0.92	0.94	cosφ≤1		
									Qc = P <sub>mot</sub> · F(0.96)=...[kvar] 100 · 1.01=101.0 kvar		
Faktor F											
3.18	0.30	2.43	2.48	2.56	2.64	2.70	2.75	2.82	2.89	2.98	3.18
2.96	0.32	2.21	2.26	2.34	2.42	2.48	2.53	2.60	2.67	2.76	2.96
2.77	0.34	2.02	2.07	2.15	2.23	2.28	2.34	2.41	2.48	2.56	2.77
2.59	0.36	1.84	1.89	1.97	2.05	2.10	2.17	2.23	2.30	2.39	2.59
2.43	0.38	1.68	1.73	1.81	1.89	1.95	2.01	2.07	2.14	2.23	2.43
2.29	0.40	1.54	1.59	1.67	1.75	1.81	1.87	1.93	2.00	2.09	2.29
2.16	0.42	1.41	1.46	1.54	1.62	1.68	1.73	1.80	1.87	1.96	2.16
2.04	0.44	1.29	1.34	1.42	1.50	1.56	1.61	1.68	1.75	1.84	2.04
1.93	0.46	1.18	1.23	1.31	1.39	1.45	1.50	1.57	1.64	1.73	1.93
1.83	0.48	1.08	1.13	1.21	1.29	1.34	1.40	1.47	1.54	1.62	1.83
1.73	0.50	0.98	1.03	1.11	1.19	1.25	1.31	1.37	1.45	1.63	1.73
1.64	0.52	0.89	0.94	1.02	1.10	1.16	1.22	1.28	1.35	1.44	1.64
1.56	0.54	0.81	0.86	0.94	1.02	1.07	1.13	1.20	1.27	1.36	1.56
1.48	0.56	0.73	0.78	0.86	0.94	1.00	1.05	1.12	1.19	1.28	1.48
1.40	0.58	0.65	0.70	0.78	0.86	0.92	0.98	1.04	1.11	1.20	1.40
1.33	0.60	0.58	0.63	0.71	0.79	0.85	0.91	0.97	1.04	1.13	1.33
1.30	0.61	0.55	0.60	0.68	0.76	0.81	0.87	0.94	1.01	1.10	1.30
1.27	0.62	0.52	0.57	0.65	0.73	0.78	0.84	0.91	0.99	1.06	1.27
1.23	0.63	0.48	0.53	0.61	0.69	0.75	0.81	0.87	0.94	1.03	1.23
1.20	0.64	0.45	0.50	0.58	0.66	0.72	0.77	0.84	0.91	1.00	1.20
1.17	0.65	0.42	0.47	0.55	0.63	0.68	0.74	0.81	0.88	0.97	1.17
1.14	0.66	0.39	0.44	0.52	0.60	0.65	0.71	0.78	0.85	0.94	1.14
1.11	0.67	0.36	0.41	0.49	0.57	0.63	0.68	0.75	0.82	0.90	1.11
1.08	0.68	0.33	0.38	0.46	0.54	0.59	0.65	0.72	0.79	0.88	1.08
1.05	0.69	0.30	0.35	0.43	0.51	0.56	0.62	0.69	0.76	0.85	1.05
1.02	0.70	0.27	0.32	0.40	0.48	0.54	0.59	0.66	0.73	0.82	1.02
0.99	0.71	0.24	0.29	0.37	0.45	0.51	0.57	0.63	0.70	0.79	0.99
0.96	0.72	0.21	0.26	0.34	0.42	0.48	0.54	0.60	0.67	0.76	0.96
0.94	0.73	0.19	0.24	0.32	0.40	0.45	0.51	0.58	0.65	0.73	0.94
0.91	0.74	0.16	0.21	0.29	0.37	0.42	0.48	0.55	0.62	0.71	0.91
0.88	0.75	0.13	0.18	0.26	0.34	0.40	0.46	0.52	0.59	0.68	0.88
0.86	0.76	0.11	0.16	0.24	0.32	0.37	0.43	0.50	0.57	0.65	0.86
0.83	0.77	0.08	0.13	0.21	0.29	0.34	0.40	0.47	0.54	0.63	0.83
0.80	0.78	0.05	0.10	0.18	0.26	0.32	0.38	0.44	0.51	0.60	0.80
0.78	0.79	0.03	0.08	0.16	0.24	0.29	0.35	0.42	0.49	0.57	0.78
0.75	0.80		0.05	0.13	0.21	0.27	0.32	0.39	0.46	0.55	0.75
0.72	0.81			0.10	0.18	0.24	0.30	0.36	0.43	0.52	0.72
0.70	0.82			0.08	0.16	0.21	0.27	0.34	0.41	0.49	0.70
0.67	0.83			0.05	0.13	0.19	0.25	0.31	0.38	0.47	0.67
0.65	0.84			0.03	0.11	0.16	0.22	0.29	0.36	0.44	0.65
0.62	0.85				0.08	0.14	0.19	0.26	0.33	0.42	0.62
0.59	0.86				0.05	0.11	0.17	0.23	0.30	0.39	0.59
0.57	0.87					0.08	0.14	0.21	0.28	0.36	0.57
0.54	0.88					0.06	0.11	0.18	0.25	0.34	0.54
0.51	0.89					0.03	0.09	0.15	0.22	0.31	0.51
0.48	0.90						0.06	0.12	0.19	0.28	0.48
0.46	0.91						0.03	0.10	0.17	0.25	0.46
0.43	0.92							0.07	0.14	0.22	0.43
0.40	0.93								0.11	0.19	0.40
0.36	0.94								0.07	0.16	0.36
0.33	0.95									0.13	0.33

$Q_c = P_A \cdot (\tan \phi_1 - \tan \phi_2)$   
 $Q_c \text{ [kvar]} = P_A \cdot F = \text{active power [kW]} \cdot \text{factor "F"}$   
 $P_A = S \cdot \cos \phi = \text{apparent power} \cdot \cos \phi$   
 $\tan \phi_1 + 2$  according to  $\cos \phi$  values ref. table

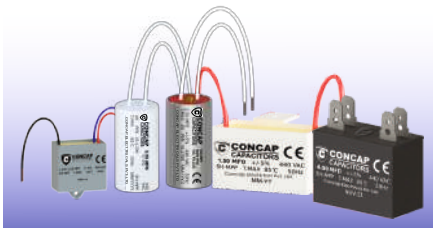
**Example:**  
 Actual motor power  $P = 100 \text{ kW}$   
 ACTUAL  $\cos \phi = 0.61$   
 TARGET  $\cos \phi = 0.96$   
 Factor F from table  $1.01$   
 Capacitor reactive power  $Q_c$   
 $Q_c = 100 \times 1.01 = 101.0 \text{ kvar}$



**CONCAP**  
**CAPACITORS**  
LEADERS SINCE 1983



**WE GOT  
MORE**



**FAN CAPACITORS**



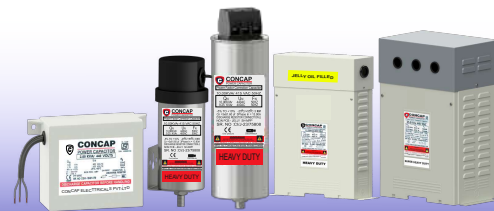
**MOTOR CAPACITORS**



**AIR CONDITIONER CAPACITORS**



**AGRICULTURE CAPACITORS**



**POWER FACTOR CORRECTION (KVAR) CAPACITORS**

### Specifications:

#### Fan Capacitors:

Conforming to IS 1709  
Capacitance: 1 – 10  $\mu$ F, 440V, 50 Hz

#### Motor Run Capacitors:

Conforming to IS 2993  
Capacitance: 1 – 144  $\mu$ F, 440V, 50 Hz

#### Submersible Pump Panel Capacitors:

Conforming to IS 2993  
Capacitance: 25 – 72  $\mu$ F, 275 / 440V, 50Hz

#### Lighting Capacitors:

Conforming to IS 1569  
Capacitance: 3.15 – 42  $\mu$ F, 250 / 440V, 50Hz

#### Air Conditioner Capacitors:

Conforming to IS 2993  
Capacitance: 1 – 80  $\mu$ F, 275 / 440V, 50Hz

#### Washing Machine Capacitors:

Conforming to IS 2993  
Available in Single and Dual Rating

#### Motor Start Capacitors:

Conforming to IS 2993  
Capacitance: 40 / 60 - 250 / 300  $\mu$ F, 275 / 440V, 50Hz  
New MPP Technology

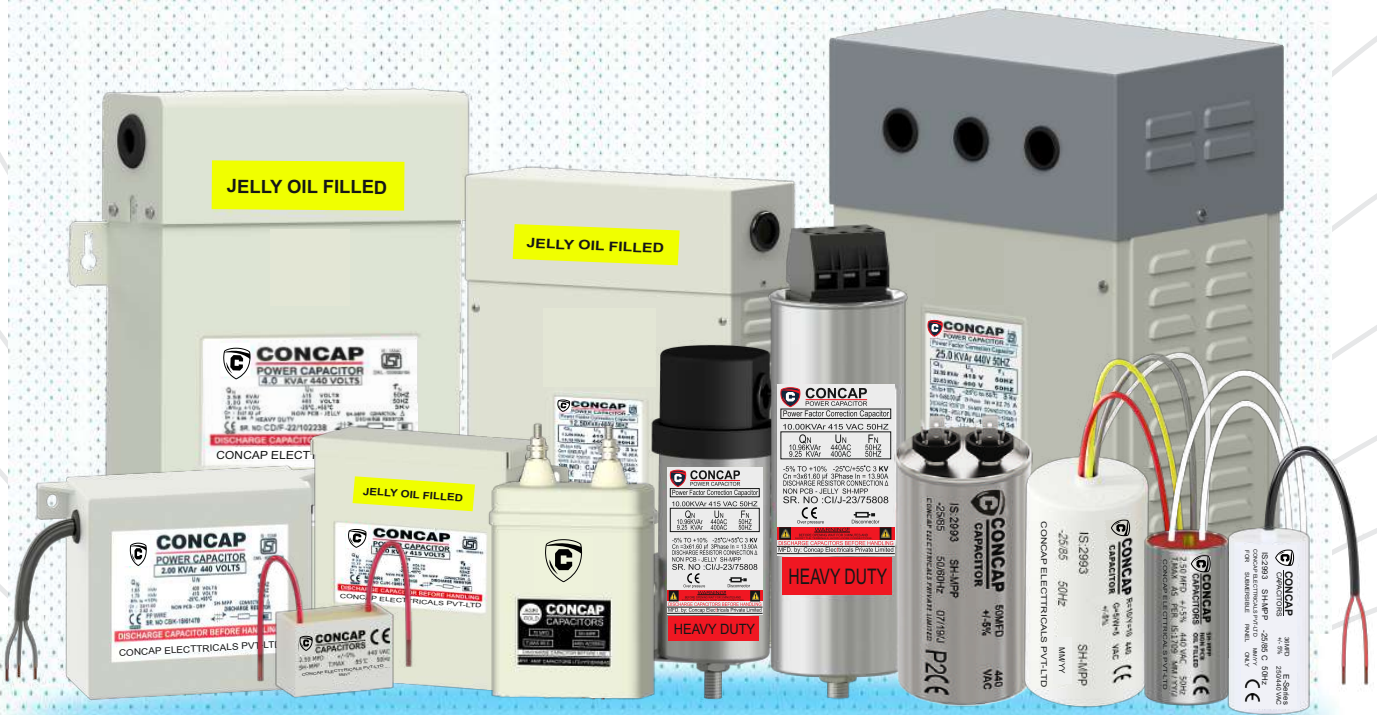
#### Features:

- Manufactured with Metallized Polypropylene Film
- Aluminium / Plastic Casing, Single / Dual Rating
- Manufactured using state of Art Automatic computerized equipments
- Stud Type Configuration also available



# CONCAP CAPACITORS

LEADERS SINCE 1983



ECO FRIENDLY



LEAK PROOF



ENERGY SAVING



ENERGY EFFICIENT



Works:

## Concap Electricals Private Limited

# Plot No.90-91, G.I.D.C Pilerne Indl Estate,  
Bardez-403511, GOA

**CUSTOMER CARE**

Ph no : +91 9949287490 , +91 9515087490

e-mail : [info@concap.in](mailto:info@concap.in), [customercare@concap.in](mailto:customercare@concap.in)



[www.concap.in](http://www.concap.in)